

Simulation of manufacturing operation of a new pharma facility concept to support key design decision

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Giovanni Giorgio

Senior Digital Engineer (GlaxoSmithKline)

Yi (Joy) Kuo




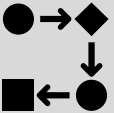
Simulation Developer (Decision Lab)

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DECISION LAB



Agenda

	Background	Introduction to Decision Lab and GSK
	Project Overview	Parma facility, project phases, and solution approaches
	Simulation	AnyLogic simulation solutions and results
	Next Steps	Further work and simulation applications

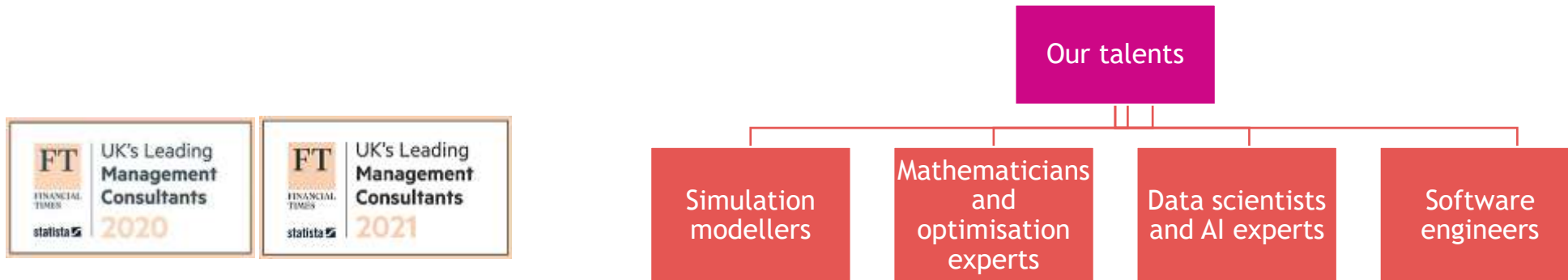
BACKGROUND

ABOUT DECISION LAB



Decision Lab is a technology-focused applications company.

We build decision support tools that exploit the latest developments in Simulation, Optimisation & Data Science



ABOUT GSK



GSK around the world

>94,000

employees across
96 countries

£9.7bn

sales of innovative
New and Specialty
products now account
for more than half of
pharmaceutical sales

6.6bn

packs of medicines,
doses of vaccines and
consumer healthcare
products delivered

£250m

contributed globally to
community initiatives



ABOUT GSK

Pharmaceuticals

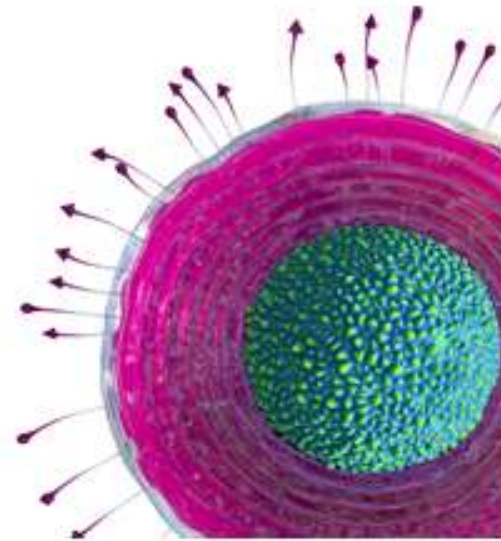
Our Pharmaceuticals business has a broad portfolio of innovative and established medicines in respiratory, HIV, immuno-inflammation and oncology. We are strengthening our R&D pipeline through a focus on immunology, human genetics and advanced technologies to help us deliver transformational new medicines for patients.

£17bn

Sales 2020

Top sales performers 2020

Respiratory
HIV
Immuno-inflammation
Oncology



Consumer Healthcare

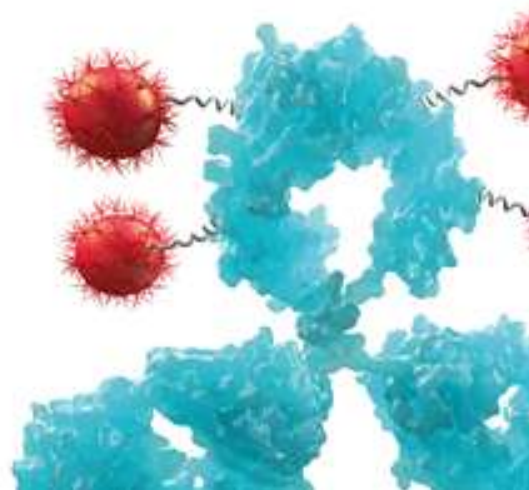
Our world-leading Consumer Healthcare business combines science and consumer insights to create innovative everyday healthcare brands that consumers trust and experts recommend for oral health, pain relief, cold, flu and allergy, digestive health and vitamins, minerals and supplements.

£10bn

Sales turnover 2020

Top sales performers 2020

Pain relief
Respiratory
Therapeutic oral health
Vitamins, minerals and supplements



Vaccines

We are the world's largest vaccines company by revenue, delivering vaccines that help protect people at all stages of life. Our R&D focuses on developing vaccines against infectious diseases that combine high medical need and strong market potential.

£7bn

Sales 2020

Top sales performers 2020

Flu
Shingles



PROJECT OVERVIEW

GSK Parma Facility



- Parma manufactures sterile and non-sterile products for GSK and third party customers including Ventolin IV, Ultiva, Doxil.
- Parma specialises in bringing new products from R&D to market: in 2012, Benlysta used in the treatment of Lupus, and in 2013, Nucala, used for the treatment of severe eosinophilic asthma, were introduced from Parma.
- In 2018, the facility to manufacture and package Fostemsavir, a new HIV treatment, was built, and in 2019 it will be used to manufacture the clinical batches on behalf of ViiV Healthcare.
- Parma proudly employs more than 600 people, manufactures 110 million units and supplies medicine to patients in 120 countries.

The business requirements



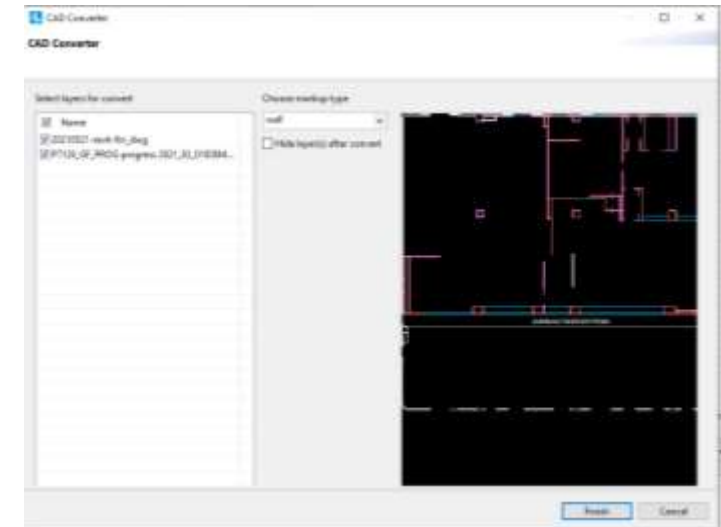
Modelling and simulation solutions

Phase I

- Design and test process model for a new production line in existing Parma site
- Account for complex processes, such as batch sizes, cleaning processes, shift patterns, etc.
- Assist operational decision-making through thru-put outputs based on machine specs

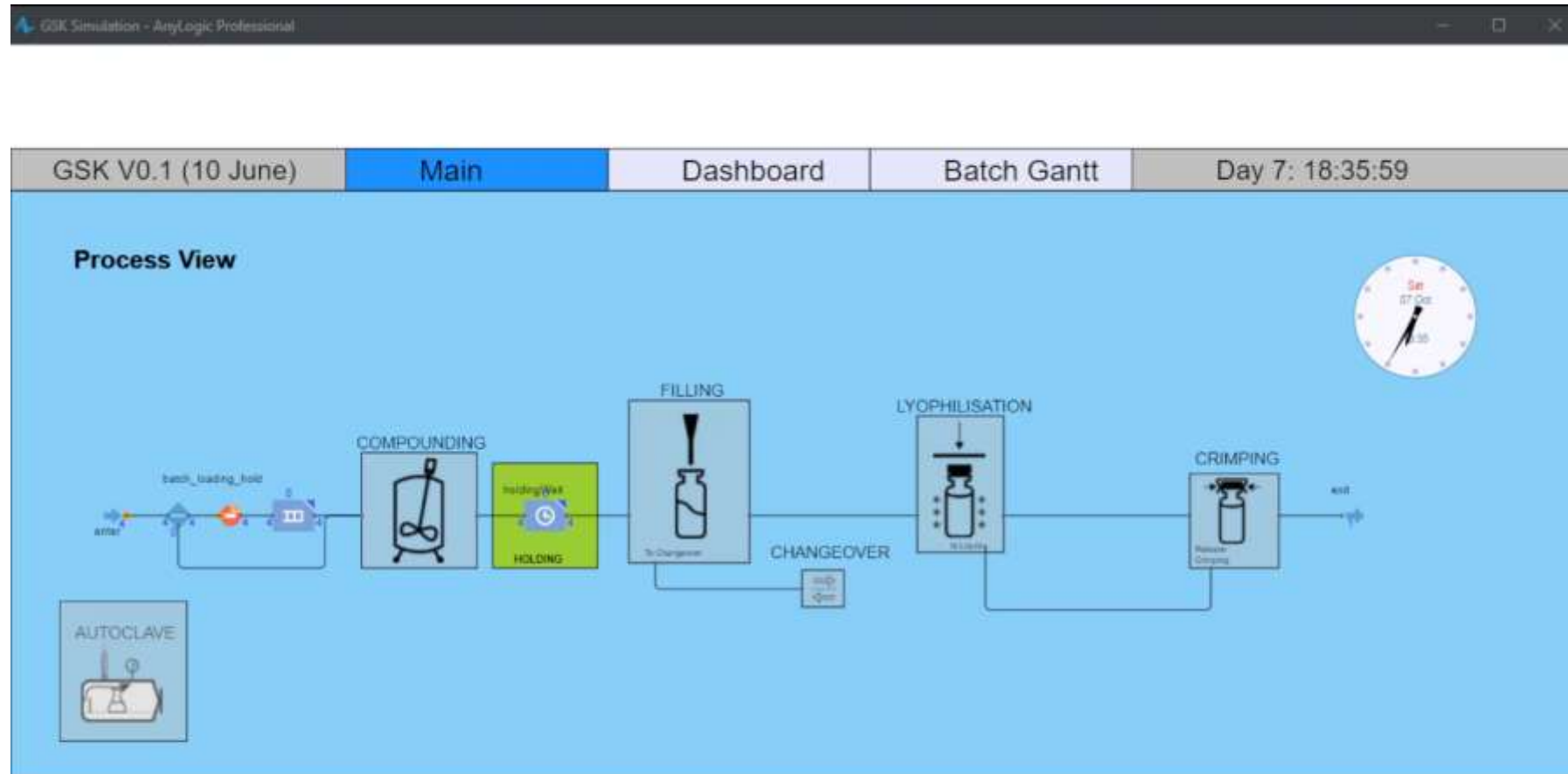
Phase II

- Improve model clarity through visualisation of processes and batch movements
- Working towards a digital twin: including accurately reflecting the site plan via BIM imports, operator activities and process loading functionalities
- Assist management decision-making through visual indication of bottlenecks/chain reactions

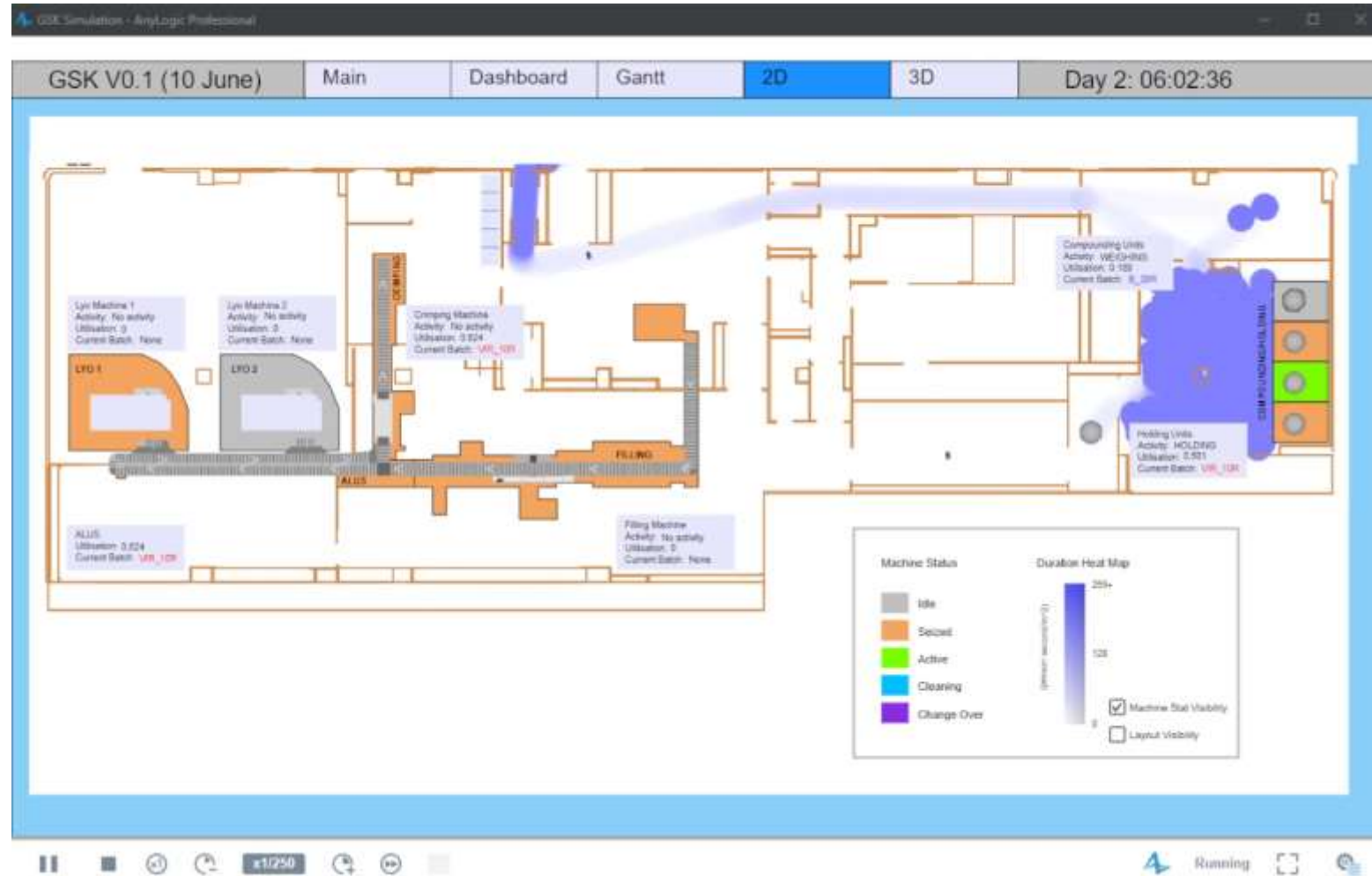


SIMULATION

Phase 1 model showcase

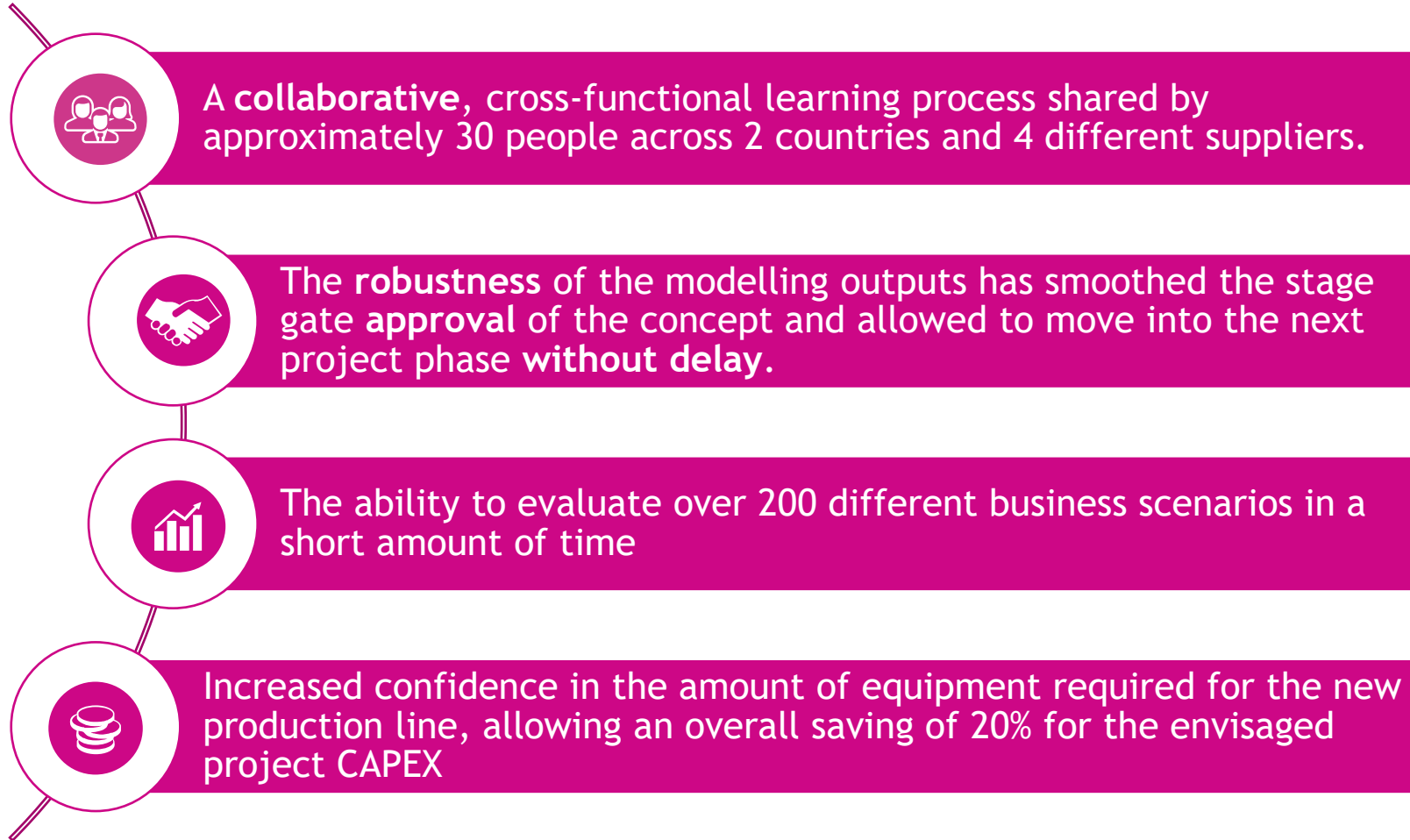


Phase 2 model showcase

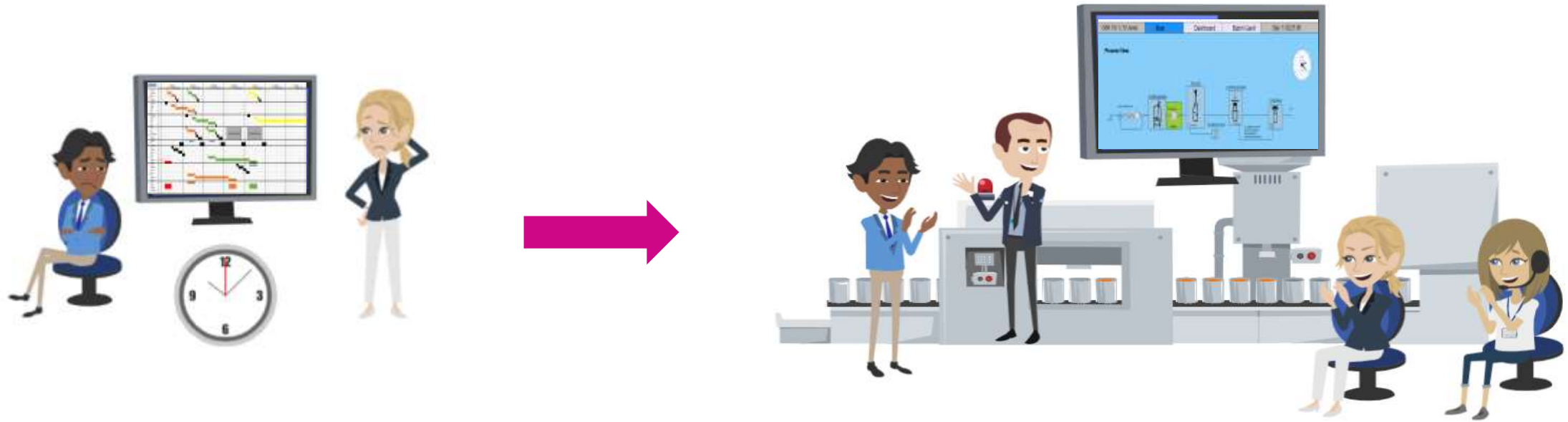


CONCLUSIONS & NEXT STEPS

Conclusion



Next Steps



PREPARED BY

Giovanni Giorgio

Senior Digital Engineer (GlaxoSmithKline)
giovanni.q.giorgio@gsk.com

Yi (Joy) Kuo

Simulation Developer (Decision Lab)
yi.kuo@decisionlab.co.uk

THANK YOU